

Date: Thursday, 24/07/2008 12:56:21 PM  
User: Linda Lacelle

## Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : BUBBLE WINDOW, RH  
Job Number : 40743  
Estimate Number : 11394  
P.O. Number :  
This Issue : 24/07/2008 S.O. No. :  
Prsht Rev. : NC Part Number : D32692  
First Issue : / / Type : THERMOFORMING Drawing Number : D3269 ~~HR/D319329~~ - Dh 08.07.24  
Previous Run : 35519 Drawing Revision : ~~C/B~~ 0 At. 08.07.24.  
Material :  
Due Date : 31/07/2008 Qty: 3/2 Um: Each  
Written By :  
Checked & Approved By :  
Comment : Est. A 05.03.22 New issue KJ/JLM  
Est B 05.05.09 Added engraving EC  
Est Rev:06-07-03 As per Rev C JLM  
Est C 07.11.06 Thermoform in-house DL verified by:EC

## Additional Product

Job Number:



Seq. #:

Machine Or Operation:

Description :

1.0

MACRYLICS177

0.177" PLEXIGLAS G CLEAR CAST ACRYLIC SH



Comment: Qty.: 10.0000 sf(s)/Unit Total : 20.0000 sf(s)  
0.177" PLEXIGLAS G CLEAR CAST ACRYLIC SH

Dh 08.07.28.

1) Batch # M 107291

2.0

HAND FINISH TH

HAND FINISHING THERMOFORMING



Comment: HAND FINISHING THERMOFORMING

Dh 08.07.28.

1) Cut Blanks to 30" by 48"

3.0

THERMOFORMING

THERMOFORMING MACHINE



Comment: THERMOFORMING MACHINE

Thermoform as per Dwg. D3269 and Folio FTA 014

Dwg. Rev. D  
Folio Rev. C

(x4)  
Dh 08.07.28. PTO.

4.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

1) Check Surface finish for undesired marks, voids, dimples etc.

2) Check depth of bubble to ensure conformity to drawing tolerances.

(x3)  
Dh 08.07.28.

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D3269-2 PAR #: HA Fault Category: Prod Performance NCR: Yes No DQA: D Date: 08/08/01  
 QA: N/C Closed: D Date: 08/08/01

NCR: <u>40743</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
08.07.28	3.	1 unit scrapped. electronic eye not activated. operator error.	<u>[Signature]</u> 08/07/28	Scrap & replace 1 unit.	08.07.28 <u>[Signature]</u>	<u>[Signature]</u> 08-08-01	<u>[Signature]</u> 08/08/01	<u>[Signature]</u> 08-08-01
08.08.01	3	THICKNESSES ARE UNDER TOL. MIN AT TOP IS 0.040" MIN SIDE IS 0.078"	08.07.31 <u>[Signature]</u>	STRUCTURAL TEST WAS REPEATED PER JP-D044-713-1. REF ADR D044-713 08.07.31. THICKNESSES ACCEPTABLE.	<u>[Signature]</u> 08/08/01	<u>[Signature]</u> 08-08-01	08.07.31 <u>[Signature]</u>	<u>[Signature]</u> 08-08-01

NOTE: Date & initial all entries

User:

Thursday, 24/07/2008 12:56:21 PM

Linda Lacelle

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: BUBBLE WINDOW, RH

Job Number: 40743

Part Number: D32692

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

QC8

SECOND CHECK



Comment: SECOND CHECK

BB 08/07/30 X3

6.0

HAND FINISH TH

HAND FINISHING THERMOFORMING



Comment: HAND FINISHING THERMOFORMING

- 1) Trim off excess flange material
- 2) Buff out any light scratches or blemishes
- 3) Etch part number and batch number

BB 08/07/31 X3

7.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

08-08-01 (3)

- 1) Visually inspect for clarity, and proper formation.

8.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

PPP 4542 2X 1 stone Pass for

9.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

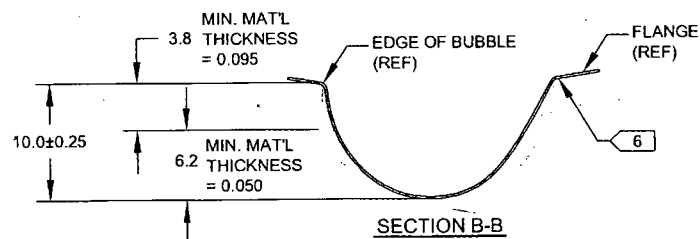
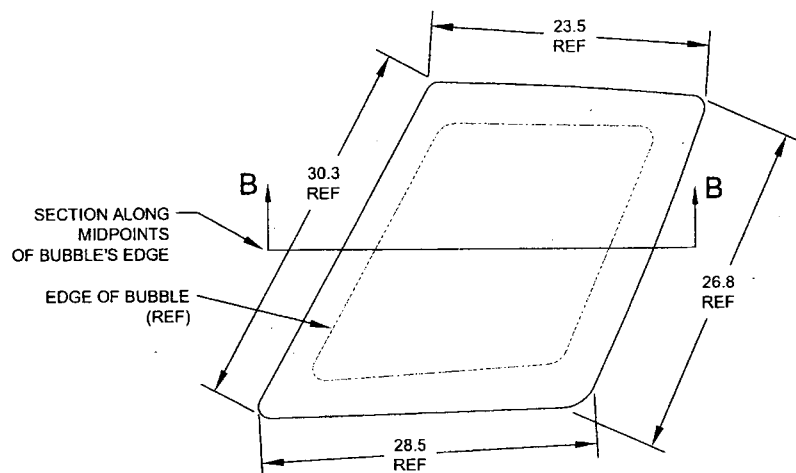
AD 08/08/01

Job Completion



W 08-08-01

8 7 6 5 4 3 2 1



D3269-2 BUBBLE WINDOW, RH

# NOTES

- 1) MATERIAL: PLEXIGLAS G CLEAR CAST ACRYLIC SHEET PER LP-391 TYPE 1 GRADE C OR POLYCAST II CLEAR ACRYLIC SHEET PER MIL-P-5425 0.177 TO 0.188 THICK (STOCK, REF DART SPEC M-ACRYLIC-S)
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.010 TO 0.020 MAX
- 6) IDENTIFICATION: ENGRAVE P/N & B/N ON FLANGE WITHIN 0.25" OF BUBBLE. USE 0.125" LETTERS TO MAX DEPTH OF 0.005".
- 7) WEIGHT: 4.88 lbs
- 8) FORM PER D3269-2T1 AND QSI 022  
FORMING PROCESS: (a) DRAPE OVER D3269-2T1 MOLD  
(b) HEAT TO 290°F  
(c) VACUUM FORM TO SPECIFIED HEIGHT  
(d) LET COOL TO AT LEAST 100°F BEFORE HANDLING  
(e) TRIM FLANGE TO PROFILE OF MOLD

RELEASED  
08.02.13

DESIGN		<b>DART AEROSPACE LTD</b>	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. D
MFG. APPR.		D3269	SHEET 2 OF 2
APPROVED		TITLE	SCALE
DE APPR.		BUBBLE WINDOW	NT:
DATE	08.02.13	COPYRIGHT © 2005 BY DART AEROSPACE LTD	
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8 7 6 5 4 3 2 1

DART AEROSPACE LTD		WORK ORDER:	
Description: R 44 Bubble Window RH		Part Number:	D3269-2
Inspection Dwg: D3269	Rev: D	Page 1 of 1	

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article    ☐ Prototype

(Step 4) Thermoforming  
Visual Inspection Sign-off

#2

Description	Initials
Depth of bubble within tolerances	<i>[Signature]</i>
Acceptable shape definition	<i>[Signature]</i>
Free of visual flaws (bumps, cracks, voids, etc.)	<i>[Signature]</i>

### (Step 6) Trimming FAI Checklist

Inspect dimensions highlighted on inspection sheet drawing \_\_\_\_\_ Rev. \_\_ and record below

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
depth of bubble 10"	+/- 0.25"	10.5	✓		Temple	
23.5	+/- 0.100		✓		Flange	
26.8	+/- 0.100		✓			
28.5	+/- 0.100	28.55	✓			
30.3	+/- 0.100		✓			
top 6.2" of bubble	0.050" Min	.40			U.S	Per MCR
Lower 3.8" of bubble	0.095" Min	.78			U.S	

Measured by: <i>[Signature]</i>	Audited by: <i>[Signature]</i>	Prototype Approval:
Date: 08/07/31	Date: 108-07-31	Date:

Rev	Date	Change	Revised by	Approved
		New Issue		

DART AEROSPACE LTD		WORK ORDER:	
Description: R 44 Bubble Window RH		Part Number:	D3269-2
Inspection Dwg: D3269	Rev: D	Page 1 of 1	

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article    ☐ Prototype

(Step 4) Thermoforming  
Visual Inspection Sign-off

#3

Description	Initials
Depth of bubble within tolerances	<i>[Signature]</i>
Acceptable shape definition	<i>[Signature]</i>
Free of visual flaws (bumps, cracks, voids, etc.)	<i>[Signature]</i>

(Step 6) Trimming  
FAI Checklist

Inspect dimensions highlighted on inspection sheet drawing \_\_\_\_\_ Rev. \_\_ and record below

Drawing	Tolerance	Actual	Accept	Reject	Method of	Comments
Dimension		Dimension			Inspection	
depth of bubble 10"	+/- 0.25"	10.5	✓		TAP	
23.5	+/- 0.100	23.5	✓		TAP	
26.8	+/- 0.100	26.5			TAP	
28.5	+/- 0.100	28.5	✓		TAP	
30.3	+/- 0.100					
top 6.2" of bubble	0.050" Min	42			US 2	per DCR
Lower 3.8" of bubble	0.095" Min	79			US 3	

Measured by: *[Signature]*  
Date: 08/07/31

Audited by: *[Signature]*  
Date: 10/07/31

Prototype Approval: \_\_\_\_\_  
Date: \_\_\_\_\_

Rev	Date	Change	Revised by	Approved
		New Issue		

DART AEROSPACE LTD		WORK ORDER:	
Description: R 44 Bubble Window RH		Part Number:	D3269-2
Inspection Dwg: D3269	Rev: D	Page 1 of 1	

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article    ☐ Prototype

(Step 4) Thermoforming  
Visual Inspection Sign-off

Description	Initials
Depth of bubble within tolerances	<i>[Signature]</i>
Acceptable shape definition	
Free of visual flaws (bumps, cracks, voids, etc.)	

(Step 6) Trimming  
FAI Checklist

Inspect dimensions highlighted on inspection sheet drawing \_\_\_\_\_ Rev. \_\_ and record below

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
depth of bubble 10"	+/- 0.25"	10.25	✓		Tape	
23.5	+/- 0.100					
26.8	+/- 0.100					
28.5	+/- 0.100	28.5				
30.3	+/- 0.100					
top 6.2" of bubble	0.050" Min	0.025			V.S	see UCR
Lower 3.8" of bubble	0.095" Min	0.025			V.S	

Measured by: <i>[Signature]</i>	Audited by: <i>[Signature]</i>	Prototype Approval:
Date: 08/07/31	Date: 08/07/31	Date:

Rev	Date	Change	Revised by	Approved
		New Issue		